

I. CLAIMS 25, 27-43, 45 AND 46 SATISFIES THE REQUIREMENTS OF 35 U.S.C. §112, FIRST PARAGRAPH

The Office Action rejects claims 25, 37-43, 45 and 46 under 35 U.S.C. §112, first paragraph, as containing subject matter not described in the specification. Claims 25, 45 and 46 have been amended to obviate the rejection.

Withdrawal of the rejection under 35 U.S.C. §112, first paragraph, is respectfully requested.

II. CLAIMS 25-46 SATISFY THE REQUIREMENTS OF 35 U.S.C. §112, SECOND PARAGRAPH

The Office Action rejects claims 25-46 under 35 U.S.C. §112, second paragraph, as indefinite. Claims 25-30, 32, 35, 39 and 43-46 are amended to obviate the rejection. Withdrawal of the rejection under 35 U.S.C. §112, second paragraph is respectfully requested.

III. THE CLAIMS DEFINE ALLOWABLE SUBJECT MATTER

The Office Action rejects claims 25, 27, 28, 30, 31 and 37 under 35 U.S.C. §102(e) as anticipated by or in the alternative under 35 U.S.C. §103(a) as obvious over (U.S. Patent No. 5,821,575) to Mistry et al.; claim 44 is rejected under 35 U.S.C. §102(e) or under 35 U.S.C. §103(a) as obvious over (U.S. Patent No. 5,623,155) to Koyama; claims 26, 28, 30, 31 and 37 are rejected under 35 U.S.C. §102(e) or 35 U.S.C. §103(a) as obvious over (U.S. Patent No. 5,623,155) to Kerber et al. These rejections are respectfully traversed.

Mistry does not disclose the features of claim 25. Specifically, Mistry does not disclose a gate electrode at least part of the gate electrode is opposed to the channel region, the gate electrode also includes an extension extending from both sides of the at least one part of gate electrode opposed to the channel region along the length direction, as claimed in claim 25.

Instead, Fig. 1C of Mistry appears to disclose a gate electrode located above a source-drain region. However, there is no description of Fig. 1C, nor has the Examiner cited a

particular disclosure in Mistry, which shows a channel region and where the channel region is located. Thus, Mistry does not disclose the feature at claim 25.

Koyama does not disclose at least one of the source or drain region and the gate electrode comprises an extension over which a plurality of contact holes are formed, as claimed in claim 44.

Instead, Koyama teaches making one channel link shorter than another channel link which can reduce the threshold voltage required in a thin film transistor (TFT). There is no disclosure, teaching or suggestion in Koyama of the claimed features of claim 44.

Kerber does not teach, disclose or suggest the channel region including an extension extending along both directions of the channel width, as claimed in claim 26 and shown in Fig. 3.

Instead, Kerber teaches in col. 1, line 64- col. 2, line 1 that one end of the ridge does not project beyond, or only slightly project beyond the channel region. Undesirably additional capacitances between gate electrode and the source and drain regions are thus kept optimally small. Thus, Kerber teaches away from the features of claim 26.

The applied art does not disclose the features of the claims recited above, and thus, the applied art cannot provide the advantages of the claimed invention. The fact that the applied art is devoid of the advantages shows, that it would not be obvious to one of ordinary skill in the art to modify its disclosure to make up for the deficiencies discussed above. Specifically, if it had been obvious to one of ordinary skill in the art to modify the applied art to make up for the deficiencies discussed above, then one of ordinary skill in the art would have done so to attain the advantages. However, no such disclosures have been found that shows the claimed invention.

Further, the specification of the present invention sets forth that the various embodiments of the present invention may be arbitrarily combined with other embodiments

of the present invention. Thus, the features of the claimed invention are clearly set forth and sufficiently disclosed in the specification.

Accordingly, withdrawal of the rejections under 35 U.S.C. §102(e) and §103(a) of claims 25, 26, 44 and 60 is respectfully requested. Likewise, withdrawal of the rejections of the dependent claims which depend from the independent claims discussed above, is respectfully requested for the additional features they recite.

IV. CONCLUSION

In view of the foregoing remarks, Applicants respectfully submit that claims 25-60 define patentable subject matter and that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,



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JAO:KMM/sdk

Attachments:

Appendix
Petition for Extension of Time

Date: April 15, 2002

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<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
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APPENDIX

Changes to Claims:

Claim 37 is canceled.

Claims 57-60 are added.

The following is a marked-up version of the amended claims 25-30, 32, 35, 37, 39, and 43-46:

25. (Twice Amended) A thin film transistor comprising:

a channel region;

a gate electrode, at least one part of the gate electrode is opposed to the channel region, said gate electrode including an extension extending from both sides of the at least one part opposed to the channel region along a channel length direction;

a gate insulating film provided between the channel region and the gate electrode;

a source- or drain region connected to said channel region;

~~a wiring layer electrically connected to said source drain region;~~

~~a gate wiring layer electrically connected to said gate electrode~~

~~an extension of the gate electrode extending outwardly above the channel region.~~

26. (Twice Amended) ~~The thin film transistor including a plurality of component parts~~ A thin film transistor comprising:

a channel region, the channel region includes an extension along both directions of a channel width;

a gate electrode ~~opposed to the channel region;~~

a gate insulating film provided between the channel region and the gate electrode; and a source-drain region connected to said channel region;

a source-drain wiring layer electrically connected to said source-drain region;
a gate wiring layer electrically connected to said gate electrode,
wherein the channel region includes an ~~outwardly extending~~ extension
extending along both directions of the channel width.

27. (Amended) The thin film transistor according to Claim 25 or 26, ~~further the~~
gate electrode comprising extensions an extension extending outwardly from both ends of the
gate electrode along the channel length direction.

28. (Amended) The thin film transistor according to Claim 25 or 26, ~~further the~~
gate electrode comprising an extension extending outwardly from at least one end of the gate
electrode along the channel length direction.

29. (Amended) The thin film transistor according to Claim ~~25 or 26~~ 28, further
comprising a gate wiring layer electrically connected to the at least one end of the gate
electrode through a plurality of contact holes the gate wiring layer being electrically
connected to the extension of the gate electrode by a plurality of contact holes.

30. (Amended) The thin film transistor according to Claim 25 or 26, further
comprising a gate wiring layer electrically connected to one end of the gate electrode through
at least one contact hole the gate wiring layer being connected to the gate electrode by at least
one contact hole.

32. (Twice Amended) The thin film transistor according to Claim 25, ~~wherein the~~
channel region includes including an outwardly extending extension extending along at least
one direction of the channel width.

35. (Amended) A display device comprising ~~an active matrix substrate on which~~
~~a driving circuit including a thin film transistor as defined in~~ a driving circuit including a thin
film transistor according to Claim 25 or 26 is formed.

39. (Twice Amended) The display device ~~according to Claim 38, the formed extension extending in a direction substantially perpendicular to a longitudinal direction~~comprising a circuit according to Claim 60.

43. (Amended) A liquid crystal display device ~~according to Claim 38, the formed extension extending in a direction substantially perpendicular to a longitudinal direction~~comprising a circuit according to Claim 60.

44. (Twice Amended) A thin film transistor including a plurality of component parts comprising:

a channel region;

a gate electrode opposed to the channel region;

a gate insulating film provided between the channel region and the gate electrode;

a source-drain region connected to said channel region;

a source-drain wiring layer electrically connected to said source-drain region;

a gate wiring layer electrically connected to said gate electrode,

~~comprising a extension extending outwardly from a part of at least one of the gate wiring layer and the source drain wiring layer, the part having two contact holes with which another contact hole is aligned~~wherein at least one of the source or drain region and the gate electrode comprises an extension over which a plurality of contact holes are formed.

45. (Twice Amended) The thin film transistor according to Claim 44, ~~an extension of the gate electrode extending outwardly above the channel region~~wherein the channel region includes an extension extending along both directions of the channel width.

46. (Twice Amended) The thin film transistor according to Claim 44, ~~wherein the channel region includes an outwardly extending extension~~the gate electrode comprising an extension extending from both ends of the gate electrode along the channel length direction.

APPENDIX

Changes to Claims:

Claim 37 is canceled.

Claims 57-60 are added.

The following is a marked-up version of the amended claims 25-30, 32, 35, 37, 39, and 43-46:

25. (Twice Amended) A thin film transistor comprising:

a channel region;

a gate electrode, at least one part of the gate electrode is opposed to the channel region, said gate electrode including an extension extending from both sides of the at least one part opposed to the channel region along a channel length direction;

a gate insulating film provided between the channel region and the gate electrode;

a source- or drain region connected to said channel region;

~~a wiring layer electrically connected to said source drain region;~~

~~a gate wiring layer electrically connected to said gate electrode~~

~~an extension of the gate electrode extending outwardly above the channel region.~~

26. (Twice Amended) ~~The thin film transistor including a plurality of component parts~~ A thin film transistor comprising:

a channel region, the channel region includes an extension along both directions of a channel width;

a gate electrode ~~opposed to the channel region;~~

a gate insulating film provided between the channel region and the gate electrode; and a source-drain region connected to said channel region;